



# Space News Roundup

Vol. 35

August 2, 1996

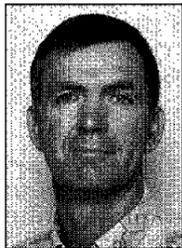
No. 30

## JSC worker judges games in Atlanta

A sport as old as the Olympic games will have a JSC engineer judging the athletes.

Archery expert Rick Stonebraker—a four-time national champion and two-time world finalist—was chosen to judge the bow and arrow competition this week in Atlanta. His 20 years of experience in the sport earned him the spot as judge and official score-keeper during the Olympics.

Stonebraker, a quality engineer who works for Raytheon supporting the Safety Reliability and Quality Assurance Directorate, has worked at JSC since 1990, but his first love is archery.



Stonebraker

"Ever since I was a kid, I wanted to be in the Olympics," Stonebraker said. "I would prefer to be in competition, but at least I will be involved there."

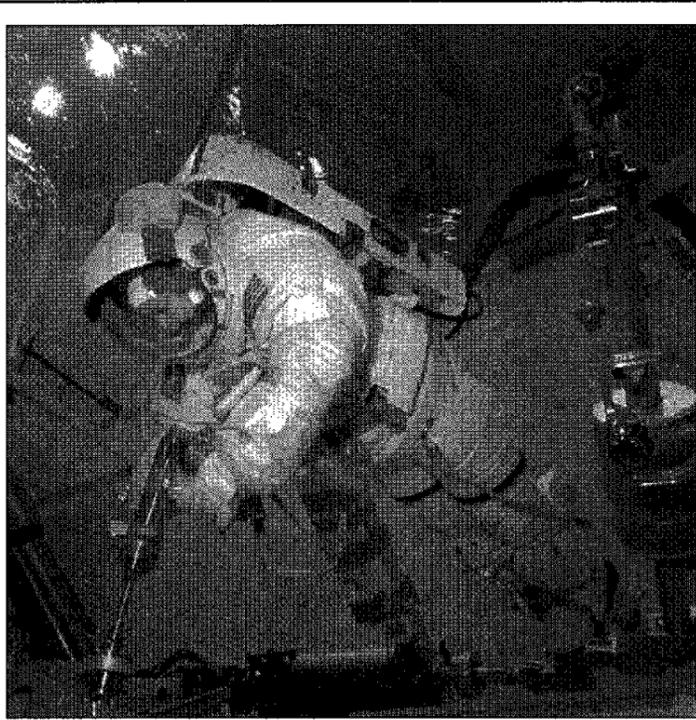
His qualifications, experiences and championships are numerous. Having earned more than 25 championship titles in the last 20 years, his most memorable highlight was being elected by his peers to the board of governors of the National Archery Association. He is in the middle of a four-year term.

Stonebraker has even brought archery competition to JSC. He organized the 1991 world championship trials at Rocket Park. Top Americans vied for four spots on the USA team that competed in Krakow, Poland.

Stonebraker tried out for the Olympic team but failed to hit the mark.

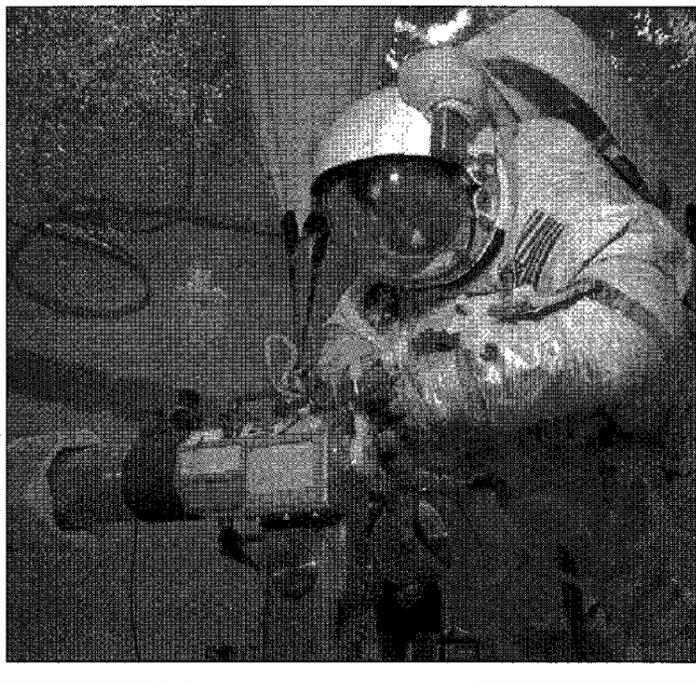
"My motto is never quit as I prepare for the 2000 Olympic Games in Australia," he said. "I will try not to get totally encompassed on goals, but place emphasis on the tasks that it takes to reach those goals. The destination is not very rewarding if you fail to enjoy the journey."

Archery has ancient roots dating back at least 50,000 years. It was one of the original sports in the first Olympic games. While archery was removed from the Olympic lineup between 1920 and 1972, it has come back to the games and was updated in 1996 with a change in the competition format. Archery is one of the few sports where size and age are not factors. Archers use fiberglass-coated bows, synthetic strings and graphite arrows and rely on skill to win.



JSC Photos by Mark Sowa

**SPACE STATION TRAINING—STS-80 Astronauts Tammy Jernigan and Tom Jones practice EVA techniques in the Weightless Environment Training Facility to prepare for two six and a half hour long space walks to test out their ability to remove, manipulate and relocate space station Orbital Replacement Units. Above: Jernigan stands on a portable work platform mounted on the robot arm and uses a pistol grip tool with extension to remove a battery and carrier mounted on the side wall of the shuttle's cargo bay. With the carrier removed, both Jernigan and Jones will demonstrate mass-handling techniques as they move the hardware through a series of pre-determined positions. Below: Jones, is working with the ORU transfer device, or crane, which can be used to move ORUs during station assembly.**



## Atlantis rolls to OPF to await booster mating

By James Hartsfield

While stacking operations continued on a replacement set of solid rocket boosters, *Atlantis* was detached from its original boosters this week and moved back to a Orbiter Processing Facility where it will remain until mid-August.

In Kennedy Space Center's Vehicle Assembly Bldg. Thursday, *Atlantis* was lifted off of the original boosters and external tank and set down horizontally before being rolled over to the Bay 3 processing hangar. Meanwhile, technicians stacking the new set of boosters for *Atlantis* encountered a problem when the joint connecting the right aft center and right forward center segments failed a leak test. The segments were destacked and the O-ring seals replaced, removing a loose applicator brush bristle that apparently had caused the problem. The segments were then restacked and rechecked with no problems.

The problem did not significantly delay the stacking operations, and they were scheduled to be completed

ed by the end of the week, keeping *Atlantis*' preparations on track for a possible launch as early as Sept. 12 on STS-79. Milestones in future preparations include attaching the external fuel tank to the replacement boosters and moving *Atlantis* back to the VAB to be attached to the new stack on Aug. 13.



*Atlantis* is planned to be rolled out to Launch Pad 39A on Aug. 20. The crew of STS-79—Commander Bill Readdy, Pilot Terry Wilcutt and Mission Specialists Tom Akers, Jay Apt, Carl Walz and John Blaha, who will replace astronaut Shannon Lucid aboard the Russian Mir Space Station—will participate in a dress rehearsal countdown at KSC on Aug. 27.

Elsewhere, *Endeavour* was ferried piggyback aboard the 747 Shuttle Carrier Aircraft from KSC to Palmdale, Calif., this week to begin a nine-month period of modifications and maintenance, including changes that will prepare *Endeavour* for the first International Space Station. Please see **ENDEAVOUR**, Page 4

## Mir crew gets supplies; continues research

In her 19th week aboard the Russian Mir Space Station, Cosmonaut Researcher Shannon Lucid and her crewmates, Commander Yuri Onufrienko and Flight Engineer Yuri Usachev, await the Russian supply capsule.

Progress—scheduled to reach Mir on Saturday—carries with it a special package for Lucid, put together after her stay on Mir was extended for six weeks. Specialty items included in the additional supplies requested by Lucid include books, M&Ms, twinkies and cheese pretzels.

In an interview last Thursday, Lucid made it clear that she was planning to keep busy during her extra time in space.

"I am still finishing up the United States experiments that we were doing, and then we're going to start in on the experiments that were scheduled to be started on the next segment," Lucid said. "I'll be pretty busy until the time I come home."

The extra time is allowing Lucid to collect extra samples from some of her experiments, producing more comprehensive data. Last week, Lucid continued work with the Candle Flames in Microgravity Experiment, using several spare sets of candles as part of the extension of her research. Researchers on Earth also provided Lucid with ways to change the experiment, giving investigators additional insight into the complicated physiochemical process of combustion.

Lucid has burned a total of 79 candles up in space, which surpasses the original plan based on a

total of only 60 candles. In Thursday's interview, Lucid describes what she sees when a candle burns in microgravity.

"I have a whole series of different sizes of candles and we're lighting them and then we're videotaping and taking pictures and looking to see how the flame burns and it burns quite differently up here in a microgravity environment than it does down on Earth," Lucid said.

"The way the flame looks is like a little blue igloo sitting right on top of the wick."

Experiments on the study of the Mir environment and its effects on sensitive microgravity experiments also continued in conjunction with the CFM experiment, as data from the Space Acceleration Measurement Systems and the Enhance Dynamic Load Sensors was collected.

Ultimately, Lucid's work, as well as the work of those who will follow her, is done in preparation for building and living on the International Space Station, and Lucid is excited about that station's future.

"I have been very impressed with the way that things have been working here on Mir," Lucid said. "I am not a very patient person, and I wish that we could go a little faster in getting the space station built, and I think the Russians are going to be good partners to have."

The spirit of international cooperation, which is being displayed in orbit now and will be required to build the International Space Station, has Please see **BLAHA**, Page 4

## Security to issue new vehicle decals

The JSC Security Branch will issue new vehicle decals this month to all permanently badged civil service and contractor employees.

Employees may request a maximum of three decals by presenting a completed JSC Form 1572, Vehicle Registration Record. These forms are available at the badge offices in Bldgs. 30, 110, the reception desk in Bldg. 1 and contractor security offices. Completing the JSC Form 1572 in advance will expedite the issuance of new decals. A valid permanent NASA or JSC badge and driver's license will be required to obtain new decals. Vehicle information required for registration includes year, make, model, color, license plate number and state in which vehicle is registered.

Security will be available in several building lobbies during the month of August to issue new decals. Decals will be issued from 8 a.m.-4 p.m. at each of the

following locations. Employees may obtain new decals in Bldg. 1, Aug. 5; Bldg. 4N and Bldg. 4S breezeway, Aug. 6; Bldg. 16, Aug. 7; Bldg. 30, Aug. 8; Bldg. 419, Aug. 9; Bldg. 32, Aug. 12; Bldg. 31, Aug. 13; Bldg. 45, Aug. 14; and Bldg. 227, door 2, Aug. 15. Security will be available at Ellington Field in Bldg. 273 break-room on Aug. 16.

New decals also will be available at Bldg. 110 from 7:30 a.m.-5 p.m., beginning Aug. 5 Monday-Thursday and from 7:30 a.m.-noon on Friday. The current vehicle decals do not have to be returned when new decals are issued, but they must be scraped off and destroyed before applying the new decal. Effective Sept. 1, current decals will be obsolete. After that date, personnel will no longer be able to show a badge to gain entry into JSC and will need to go to Bldg. 110 to obtain a vehicle decal or temporary pass. For more information, call x32112.



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# Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

**Houston Astros vs St. Louis Cardinals:** 7 p.m. Aug. 25 at the Astrodome. Mezzanine tickets cost \$14.50.

**EAA Mexico Copper Canyon Train Trip:** Nov. 6-12, \$995 per person, \$200 deposit required, final payment due Sept. 6.

**Sam Houston Race Park:** \$10 value pack for \$5.25, includes Club Level seating, program, tip sheet, admission, preferred parking and gift shop discount.

**Splashtown:** One day pass cost \$14.25.

**Schlitterbahn:** One day pass cost \$19.75 for adults, \$16.95 for children.

**Astroworld:** One day pass cost \$22.75, two day pass cost \$34.25.

**Fiesta Texas:** One day pass cost \$22.75, two day pass cost \$34.25.

**Six Flags at Arlington:** One day pass cost \$22.75, two day pass cost \$34.25.

**Sea World:** Adult tickets cost \$24.50, children (3-11) cost \$17.25.

**Space Center Houston:** Discount tickets, adult, \$8.75; children (4-11), \$6.25, annual membership, \$22.95, family membership, \$59.95.

**Movie discounts:** General Cinema, \$4.75; AMC Theater, \$4.50; Sony Loew's Theater, \$4.75.

**Stamps:** Book of 20, \$6.40.

**JSC history:** *Suddenly, Tomorrow Came: A History of the Johnson Space Center.* Cost is \$11.

**Metro tickets:** Passes, books and single tickets available.

**Special Event:** Splashtown NASA Family Days are Aug. 9-18. Tickets are on sale through Aug. 7, are good for one day only and cost \$9.95.

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# Gilruth Center News

**Sign up policy:** All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a NASA badge or yellow EAA dependent badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

**EAA badges:** Dependents and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday; and 8 a.m.-4 p.m. Saturdays. Dependents must be between 16 and 23 years old.

**Fitness Challenge:** 1996 Fitness Challenge runs to Aug. 31. Employees are eligible to win \$100 gift certificates. For more information call Larry Wier at x30301.

**Defensive driving:** One day course is offered once a month. Cost is \$25. Interested employees should call the Gilruth.

**Stamp club:** Meets at 7 p.m. every 2nd and 4th Monday in Rm. 216.

**Women's self defense:** Martial Arts training for women only from 5-6 p.m. Tuesdays and Wednesdays. Cost is \$25 a month.

**Weight safety:** Required courses for employees wishing to use the weight room is offered from 8-9:30 p.m. Aug. 12 and 22. Pre-registration is required. Cost is \$5.

**Exercise:** Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays.

**Aikido:** Martial arts class meets from 6:15-7:15 p.m. Tuesday and Wednesday. Cost is \$25 per month. New classes begin first of each month.

**Aerobics:** Class meets from 5:15-6:15 p.m. Monday, Tuesday and Thursday.

**Ballroom dancing:** Cost is \$60 per couple. For additional information call the Gilruth Center at x33345.

**Country and Western dancing:** Beginner class meets 7-8:30 p.m. Monday. Advance class meets 8:30-10 p.m. Monday. Cost is \$20 per couple.

**Fitness program:** Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information, call Larry Wier at x30301.

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# Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP2, or deliver them to the deposit box outside Rm. 181 in Bldg. 2. No phone or fax ads accepted.

## Property

Rent: LC Countryside North, 3-2-5-2, new paint/carpet/wallpaper/roof/deck siding, garage opener, avail now, \$850 + dep. x33765 or 326-1390.

Sale: Egret Bay condo, 1-1, appliances, new carpet, FPL, covered parking, \$29.9k. 339-2306.

Sale: Waterfront lot, 5 ac, Dickinson bayou, recent bulkhead, wooded, \$65k obo. x31370 or 334-7412.

Lease: Meadowgreen, 3-2-2, new carpet, 1800 sq ft, avail 8/1, \$950 + dep. 244-0124 or 480-9436.

Rent: Tranquility Lake condo, 2nd flr, 1BDR, W/D, FPL, covered parking, gated entry, \$480. 334-5291.

Sale: Bay Forest, custom home, energy efficient, 3BDR, den, LV/DR, wet bar, island kitchen, pool, by owner, \$204.5k. 488-3468.

Sale: Deer Park, 3-2-2, corner lot, trees, extras, ex cond. x30425 or 941-2495.

Sale: Duplex w/2 lg apartments, 1 upstairs/1 downstairs, already rented, sep utilities, near Alameda Mall, possible owner financed, \$49k. 332-7137.

Sale: Pearlland, West Oaks, 3-2-2, huge master, whirlpool, gaslog FPL, cathedral ceilings, custom wood blinds, kitchen w/island, \$120.5k. Scott, x33600 or Jere, 482-9500.

Rent: Beach house, Crystal Beach, TX, Galveston County, sleeps 10, furnished, cable TV, ocean view, wkly/wkend rates. 486-1888.

Rent: Lake Travis cabin, private boat dock, central A/C/Heat, fully equipped, sleeps 8, summer/fall, \$650/\$550 wkly/\$120 daily. 474-4922.

Rent: South Lake Tahoe cabin, sleeps 8, 3-2, cable TV/VCR, microwave, modern kitchen, W/D, \$75/night, wkly & holiday rates. x41065 or 326-2866.

Rent: Arkansas cottage in the woods overlooking Blue Mountain Lake and Mount Magazine, turn w/massive FPL, antiques, \$50/day or \$250/wk. Corcoran, x47806 or 334-7531.

Rent: Beach house, West Galveston, Jamaica beach, 2nd row on beach, great view, amenities, sleeps 7, wknd/wkly rates. 488-6796.

## Cars & Trucks

'88 Dodge Aries K, 4 dr, new radiator/battery/hoses, dependable. \$1.5k. Greg, x34391 or 335-8098.

'88 Acura Legend Sedan, white w/tan bottom, leather interior, ex cond, \$6,995. David, 997-9547.

'84 BMW 318 i, 5 spd, sunroof, white, good cond, A/C, \$3,850 obo. x35590 or 991-0821.

'91 Isuzu PU, 5 spd, 94k mi, \$4.4k. x39527 or 538-3483.

'92 Explorer XLT, 4 dr, leather, running boards, 54k mi, \$13k. Johnny, 335-5078 or 488-8174.

'92 Nissan PU w/ext cab & cap, ex cond, 52k mi,

light blue, clean, \$9.5k obo. James, x33085 or 474-7134.

'87 Dodge custom van, 318, hi mileage, \$5.8k. Owen, x36315.

'73 Buick Century, ex cond, 46k mi orig, 4 new tires, A/C works/needs compressor. Allen, x38824 or 286-1124.

'80 Toyota 4x4 PU, 1 owner, runs great, dependable, \$1,950 obo. Mark, x33165 or 332-6966.

'94 Ford F350 Crew Cab dually, pwr stroke diesel, conversion pkg, transferable warr, loaded, less 70k mi, \$23.5k. Ron, 331-0925.

'91 Ford Aerostar, 7 passenger, 56k mi, new tires/brakes & A/C. Byron, 337-3811.

'81 Toyota Corolla wagon, new clutch/alternator, runs good, \$800 obo. Steve, 992-2841.

'68 Classic VW Bug, titled/registered/inspected, low miles, good appearance, runs well, \$2.8k. Steve, 333-4736 x23 or 480-5767.

'80 El Camino, \$2k obo. 481-4860.

'89 Pontiac LeMans, 2 dr, 5 spd, silver, A/C, looks & runs great, AM/FM/cass, \$1.9k. Joe, x38851 or 488-1750.

'83 Nissan Maxima, P/W, pwr moonroof, cruise, low miles, new brakes/tires/transmission/clutch, good cond, \$2k obo. x34823 or 474-5252.

'63 Impala, 90k mi, \$5k firm. x47831 or 944-8717.

## Boats & Planes

'90 Waverunner w/trailer, ex cond, \$2.2k. John, 529-7873.

## Cycles

'84 Suzuki GS550L, 12.7k mi, new battery, carburetors recently cleaned/overhauled, \$450. Dave, x38990 or 332-8041.

'90 Yamaha Radian 600, runs great, looks great, \$1.8k. James, 286-1934.

## Audio Visual & Computers

486/33 motherboard w/8Mb memory, IDE controller, will sell separately. \$150 obo; 1Mb 30 pin SIMM, \$15. 992-4427.

Epson Action Laser II printer, \$360 obo. x35590.

Mac Power PC 6290, 16Mb RAM, 1.2Gb HD, 100 MHz, 4x CD, 28.8k modem, 14" multi scan A/V monitor, keyboard, mouse, \$1,695; Quadra 640 w/DOS/Windows card; 12Mb RAM, 500Mb HD, 14" monitor, keyboard, mouse, \$995. 244-2444 or 488-4382.

Mac 28.8k Teleport Platinum fax/modem, \$140; 14" 28dpi color monitor for Mac, \$150; Softwindows '95 for PowerPC, \$150; HP Scanjet 45 for Mac, \$199. 244-2444 or 488-4382.

Yamaha stereo system w/double door, oak cabinet, \$275 obo. 996-0152.

AT&T cordless phone, speakerphone, 1 or 2 line, \$40; Macintosh Global Village modem 2400 baud, \$20. Bob, x33149.

Sega Game Gear system w/case, adapter, magnifier & 7 games, \$150; Jungle Strike game for SNES, \$35. Ron, x48200.

Casio color power graphic CFX 9800 GW color graphing calculator, for advanced math, icon driven menu, obo. Alison, x30371 or 286-9820.

## Today

**Cafeteria menu:** Special: tuna noodle casserole. Total Health: baked potato. Entrees: steamed salmon steak, baked chicken, fried cod fish, ham steak. Soup: seafood gumbo. Vegetables: French cut green beans, cauliflower with cheese, green peas, black-eyed peas.

## Monday

**Cafeteria menu:** Special: breaded cutlet. Total Health: crispy baked chicken. Entrees: stir fry pork and rice, baked chicken, smoked sausage with German potato salad, French dip sandwich. Soup: cream of broccoli. Vegetables: okra and tomatoes, peas, navy beans, baby carrots.

## Tuesday

**ABWA meets:** The American Business Women's Association Clear Lake Area Chapter will meet at 5:30 p.m. Aug. 6 at Bay Oaks Country Club. For more information call Nancy Hutchins at x34006.

**NMA class:** The Texas Gulf Coast Council of National Management Association is hosting a 10-hour money management seminar from 6-9 p.m. Aug. 6, 13 and 20 at 600 Gemini, Aug. 8 and 15 at 16665 Space Center Blvd. and Aug. 14, 21 and 28 at 2400 NASA Road 1. Cost is \$50 per couple for members and \$75 per couple for nonmembers. For more information call Richard Hergert at 280-0444.

**Cafeteria menu:** Special: fried chicken. Total Health: vegetable lasagna. Entrees: Salisbury steak, steamed pollock, vegetable lasagna, French dip sandwich. Soup: split pea and ham. Vegetables: mixed vegetables, French cut green beans, pinto beans, vegetable sticks.

## Wednesday

**Toastmasters meet:** The Space-land Toastmasters will meet at 7 a.m. Aug. 7 at the House of Prayer Lutheran Church. For details call

Jeannette Kirinich x45752.

**Astronomy seminar:** The JSC Astronomy Seminar will meet at noon Aug. 7 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information call Al Jackson at x35037.

**Cafeteria menu:** Special: stuffed bell pepper. Total Health: baked potato. Entrees: stir fry chicken & rice, wieners & beans, fried fish, western special, beef, chicken sausage, Reuben sandwich. Soup: seafood gumbo. Vegetables: buttered rice, Italian green beans, corn O'Brien, peas and carrots.

## Thursday

**Airplane club meets:** The Radio Control Airplane Club will meet at 7:30 p.m. Aug. 8 at the Clear Lake Park Community Bldg. For details call Bill Langdoc at x35970.

**Cafeteria menu:** Special: barbecue smoked link. Total Health: roasted turkey breast. Entrees: turkey and dressing, beef stroganoff, steamed pollock, French dip sandwich. Soup: tomato Florentine. Vegetables: Spanish rice, lima beans, buttered squash, oriental vegetables.

## Friday

**Astronomers meet:** The JSC Astronomical Society will meet at 7:30 p.m. Aug. 9 at the Lunar & Planetary Institute 3600 Bay Area Blvd. For more information call Chuck Shaw at x35416.

**Cafeteria menu:** Special: meat sauce and spaghetti. Total Health: baked potato. Entrees: rainbow trout, liver and onions, beef cannelloni, ham steak, fried cod fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: steamed broccoli, breaded okra, cut corn, black-eyed peas.

## Aug. 13

**BAAC meets:** The Bay Area Aero Club will meet at 7 p.m. Aug. 13 at the Houston Gulf Airport in League

City. For more information call Jerry Adair at x38058.

## Aug. 14

**MAES meets:** The Society of Mexican American Engineers and Scientists will meet at 11:30 a.m. Aug. 14 in the Bldg. 3 Cafeteria executive dining room. For more information call Michael Ruiz at x38169.

## Aug. 15

**Blood drive:** JSC will host a blood drive Aug. 15 in Teague Auditorium. For more information call Marty Demaret at x36007.

**Directors' meet:** The Space Family Education board of directors will meet at 11:30 a.m. Aug. 15 in Bldg. 45, Rm. 712D. For more information on this open meeting call Gretchen Thomas at x37664.

## Aug. 21

**Scuba club meets:** The Lunarfans will meet at 7:30 p.m. Aug. 21 at Redfish Restaurant under the Kemah/Seabrook Bridge, Seabrook side. For more information call Fred Toole at x33201.

## Aug. 22

**NASA open forum:** NASA will conduct an open forum meeting to solicit responses concerning NASA's procurement policies and practices from 2-4 p.m. Aug. 22 at the Teague Auditorium. For more information call the JSC Industry Assistance Office at x34511.

## Aug. 29

**PMA workshop:** The Performance Management Association, Houston chapter, will host a luncheon workshop on the implementation of an Earned Value Management System at 11:15 a.m. Aug. 29 at the Ramada Inn on NASA Road 1. The discussion will focus on "Work Authorization and Budget Drivers." Cost is \$13 and includes lunch. For more information call Susan Widmer at x34299.

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Sony Playstation, ex cond, great for kids, includes 6 games, \$350 obo. Albert, x32409 or 331-0150.

Kenwood 150 w/channel stereo system, CD, dual tape, 20 preset tuner, equalizer, turn table, speaker, \$450. 334-5291.

Fender "Super" all tube combo amp, 60 watts, 12" Celestion, ex cond. Steve, 333-4736 x23 or 480-5767.

Mac Performa 450, 25MHz, 4Mb RAM, 512 NB HD, 14" color monitor, keyboard, 1.4Mb FD drive, complete documentation, ex cond, \$600. 244-1791 or 488-1326.

Packard Bell 386sx16, 4Mb RAM, 105Mb HD, VGA monitor, Panasonic KXP 1123 24-pin dot matrix printer, DOS 6.22, Windows 3.1 & MS Works, \$320 obo. Curt, x41065 or 326-2866.

486 DX2/80 MHz motherboard, w/AMD processor, \$100 obo; Panasonic 24 pin color capable dot matrix printer, \$25. Elizabeth or Jon, 286-7002.

Satellite receiver/descrambler, Tractor V. satellite disk & controller, \$250. 337-4182.

TI 4000E DX4/75MHz laptop, active matrix color monitor, 450Mb HD, 8Mb RAM, 1.44FD, 14-4 fax/modem, 2 batteries, cables, etc, Win 3.1/DOS 6.22, Laplink V, ex cond. Tim, 481-4860.

Luxman model L450 integrated amplifier, \$250; Marantz model 112 tuner, \$50. Mark, x35211 or 561-7768.

Old upright piano, \$500. x34100 or 488-8174.

Yamaha closed-holed flute, ex cond, \$200. Linda, x36246 or 559-1491.

Hondo black electric guitar, ex cond, hard case, amp & beginners book, \$150 obo. Rick, 480-8245.

## Lost & Found

Lost Panda coin rope bracelet, 7/24 somewhere between Bldgs 8, 30 and 45, has sentimental value. Joeva, x34009.

## Pets & Livestock

Have female Pomerian, unregistered, would like to find a small male Pomerian for stud service, needed soon. x36175.

Free kittens, black, 3 mos old, 1 female/1 male. x38603 or 332-1354.

Registered quarter horse mare/gelding, saddles, tack, 2 horse trailer. 559-1491.

# Space Stepping

## Teachers spend time at JSC learning space technology

(Editor's note: Danita McDonald participated in JSC's Summer Teacher Enhancement Program, or STEP. She worked as an instructor assistant during the 1996 STEP workshop. McDonald is a teacher and lives in Kirtland, N.M. The following is her interpretation of the workshop.)

By Danita McDonald

The second annual Summer Teacher Enhancement Program, or STEP, workshop was an educational experience in which teachers learned about the International Space Station and space technology.

JSC's Educational Outreach Program and Biological Sciences Curriculum Studies from Colorado Springs, Co., sponsored the workshop, doing their best to create an experience in which teachers could become knowledgeable about the space station and space technology, and translate some of that information into the classroom. The workshop consisted of classroom instructions and tours of JSC facilities.

Teachers were allowed access to Bldg. 9, and the expertise of the engineers, contractors and other personnel in the mock-ups. Teachers performed tasks while riding in a chair on the Precision Air-Bearing Floor. This experience opened many eyes and minds to the workings of astronauts in a microgravity environment. It also gave the teachers first-hand information to better explain these situations in a classroom.

Teachers sat in the cockpit of the Full Fuselage Shuttle Trainer and were treated to a complete briefing on the Robotic Arm, from how the arm is stowed in the payload bay to how it functions in space. Some of the other experiences at JSC were in the hypo and hyperbaric chambers, where the teachers learned about oxygen hypoxia and the dangers of air travel in a micro-gravity environment. A trip through the Space Environment Simulation Lab topped off the tour.

In addition, a classroom lecture by Mike Fox about Human Physiology in Space really sparked understanding and appreciation for the amount of research and precautions taken in studying and preparing for space travel. Vickie Kloeris briefed teachers on their visit to the shuttle food lab. Kloeris explained how the menus and meals were prepared for space travel, and how the food items were stowed on board. She also talked about the collabora-

tive efforts of meal planning between the Russian Space Program and NASA.

Teachers commented that one of the most interesting and interactive activities was the Neutral Buoyancy Laboratory. After visiting the Sonny Carter Training Facility and the Weightless Environment Training Facility, the teachers experienced simulated weightlessness and neutral buoyancy themselves. The teachers were briefly instructed in the guidelines of scuba-diving, and went into a swimming pool where they were equipped and weighted to create a neutrally buoyant situation. While working in teams, teachers were tasked to build a structure using PVC pipe.

"We take our mobility and our environment very much for granted, and have no idea how

to adapt to any other way of moving," said Dennis Forsythe, a teacher in STEP. "This activity really brings home just how difficult it must be to move about in space and how much training is involved."

Many of the teachers felt this was one of the best experiences of the STEP program, because it was such a personal experience. Teachers Marsha Willis, Cliff Wendell and Jane Spence from Austin, Texas, have used this activity in their teaching of the space program for several years.

"It is one of the activities we do with the kids that really simulates what it is like for the astronauts to move in outer space," Willis said. "We can talk and talk, but until you can actually show what it is like, many students aren't hooked. We can really hook them with this activity, and the kids really enjoy it. So do the teachers."

A major part of the workshop was devoted to investigations using the Constructivism Approach—student learning through active participation—as well as educating the teachers in the workings of the Internet and related technologies. In the electronic classroom, each participant had his or her own computer station to work from, and significant time was devoted to bringing the teachers up to date regarding e-mail and surfing the Internet for information. The information systems staff was instrumental in teaching the participants and helping them enter the age of the Internet smoothly. Jacque Havelka and Katie Hamilton introduced the U.S. and Russian Space

Exploration Data Bases in a unique way—promoting exploration and input of the data bases via a contest amongst the teachers. In the electronic classroom, teachers explored a variety of ways to incorporate space studies, space exploration and related technologies into various curricular study areas. While science and math are the obvious and most easily integrated areas, teachers investigated ways to include social studies and English. The implications of cultural exchange and societal comparisons between the contingents of the space program provide an opportunity to delve into the history of the space program. Comparisons of the alliances between countries, as well as past and present political struggles and relations, also lend much to the social studies area. In the areas of language arts and English, creative stories and essays were the subject of discussion, as well as biographical studies of the astronauts and other interesting people. It was decided unanimously amongst the workshop participants that including the areas of space studies and space exploration in the classroom could do nothing but enhance the current requirements of the education system. The level of excitement rose as the teachers became more and more involved in the workshop.

Along with brainstorming ideas on how to incorporate the space program into the current school curricula, the on-site Teacher Resource Center and the Information Services Center of JSC played a large part in providing the teachers with classroom and support materials on which to base their programs. According to the teachers, one of the best things about the materials is that they all come ready to use in the classroom, complete with approved objectives and support materials. Video tapes come with teacher's guides and related activities, so there is very little extraneous effort required to use the materials in class.

"NASA and JSC have really tried to make the classroom materials user-friendly, and they seem to understand that teachers don't have a lot of time to rewrite their lessons and curricula," said Patti Hendricks of Russell Middle School in Colorado Springs. "Knowing that the materials are immediately

ready for use in the classroom makes me more eager to use them in my lesson plans. I have already found several activities on space and the moon that will fit into my science lessons beautifully."

The resources the teachers collected at the STEP workshop did not end with support materials from the Teacher Resource Center. The guest speakers, engineers, contractors and astronauts also presented the workshop participants with a valuable connection—their e-mail addresses. Many of the teachers felt this was a personal connection that would definitely help them to research information, as well as a way to have their students become involved.

"Many workshops you attend have paid presenters who speak as a means to an end, such as a livelihood," said Trisha Martinez of Center, Co. "I felt that the presenters and speakers we experienced in this workshop were genuinely interested in what we were doing in the classroom and were eager to be a part of it. For me, this makes me want to go home and get back to work, knowing someone as important as an astronaut in the NASA space program feels that what I do is important."

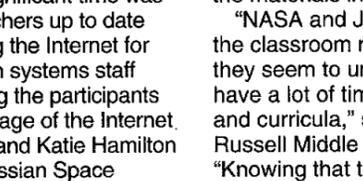
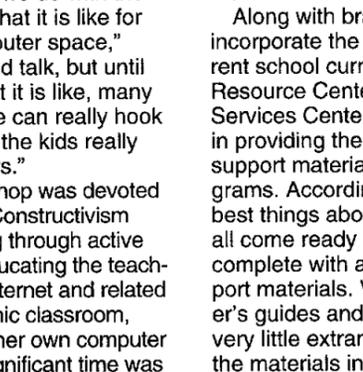
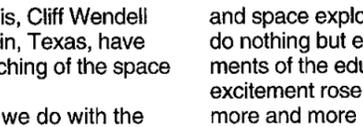
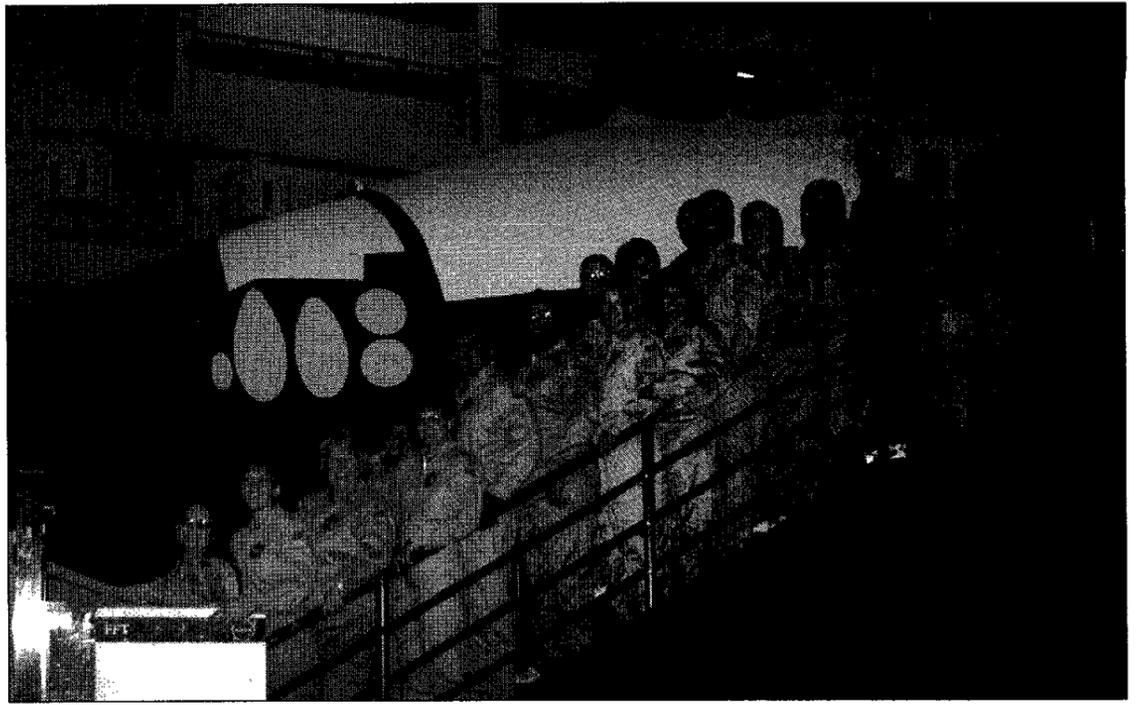
The ideas behind the workshop stem from NASA's Strategic Plan for Education, and from goals of JSC's Public Affairs Education Branch. The purpose of this workshop was to "promote excellence in America's educational system through enhancing and expanding scientific and technological competence." Incorporating the facilities of a scientific and technological research center such as JSC allows for outstanding transfer of information and experience technology to teachers on a first-hand basis.

One of the greatest challenges for teachers is staying current with information and technology, and then delivering this current information in the classroom. The STEP program has been instrumental in answering this challenge by allowing the selected teachers to experience first-hand technology and information about space exploration and travel, and also by creating for them alliances to maintain this sharing of information.

One of the requirements of participation in the STEP program is telecommunication via the Internet with the participants and instructors over the course of the following academic school year. The STEP organizers provided each participant with a Spacelink educator's account so that the teachers could communicate. STEP organizers also ensure cooperation and support of school districts so teachers can continue to participate in the program once back at school. It is the belief of STEP organizers that teachers must be able to connect with the information that is available and present it to the students in their classrooms.

Utilizing NASA's Strategic Plan for Education to enhance teacher content knowledge, skills and experiences, the STEP program incorporates science and curricular support from the organization of Biological Sciences Curriculum Study.

For most, the STEP workshop was an educational opportunity that was well worth the weeks spent away from homes and families. It was an experience that will be held dear as far as friends made and people met, and it was an opportunity for professionals to share ideas and promote each other. This is one of the few times when teachers are made to feel that what they do in their classroom is on the same level as what the most technologically-advanced scientists are doing. The basic premise is, without education, there is no advancement, and if advances are desired, education is paramount. By supporting education and educating teachers, we ensure our nation's success in our endeavors, whatever they may be and where ever they may take us, for the future. □



Photos by Danita McDonald

From top to bottom, left to right: 1) Teacher participants take a break during a tour of the Bldg. 9 mockups. The group was briefed on living and working in space, one of the workshop's classroom activity topics. The briefing was one of the many activities the teachers did during the two and a half week workshop. 2) JSC's Phil West, spacesuit expert, demonstrates the spacesuit astronauts use for work outside the shuttle during missions. 3) Teachers get "hands-on" training on the precision air bearing floor. 4) Teachers examine spacesuit hardware as part of their "Suited for Space walking" classroom activity.



# JSC adopts zero tolerance for work place violence

JSC has established a zero tolerance policy for work place violence and is offering classes and videos to help employees recognize potential problems.

"No one likes to think about the possibility of violence at his or her place of employment," said Harvey Hartman, director of Human Resources. "But as stories about such incidents become more frequently reported in the news, workers today have growing concerns about workplace violence. Understandably, they want assurances that their employers are doing something about it."

JSC has established a zero tolerance policy for intimidation, threats, harassment or violence of any kind, Hartman said. The center also has developed a plan to quickly

and appropriately respond to situations involving workplace violence.

"Employee involvement is key. Each of us has a personal responsibility to contribute to a safe and secure workplace by avoiding behavior that could provoke or escalate into a hostile situation, and by immediately reporting any incidence of workplace violence to our supervisor, Security, or the Human Resources Office," Hartman said.

Hartman adds that employees should be watchful for signs of potential conflict including talking, writing or joking about inappropriate or hostile acts; threats or talk about retaliation; denial that anything is wrong—when something clearly is; and a marked change in behavior like attendance, perfor-

mance or attitude.

If employees are aware of any of these or other indicators of a potential problem, they should voice their concerns to their supervisor or Human Resources Representative.

"Prevention is important and the sooner a potential problem is identified, the greater the likelihood of a successful intervention before a violent act occurs," Hartman said.

In addition to the zero tolerance policy, the Human Resources Development Branch now offers a variety of training courses, including "Coping Skills for Changing Times," "Understanding Organizational Change," "How to Handle Conflict and Manage Anger" and "Managing Competing Priorities." These courses are available in

each organization's quarterly training packet.

The JSC Scientific and Technical Information Center, located in Bldg. 45, Rm. 100, also has a variety of videos available for check out. Videos available include "Stress Management for Professionals," "Creative Problem-Solving," "Self-Esteem and Peak Performance" and "Controlling Anger: How to Turn Anger into Positive Action." For more information on these video, employees may call the reference desk at x34254.

For more information about workplace violence or the new zero tolerance policy, call a Human Resources Representative at x36251, Connie Alexander at x36130, or Kenneth Ramke of the Security Branch at x34441.

## JSC open house plans expand in '96

For the second consecutive year, JSC will open its gates to area residents to showcase the exciting work being done at the center.

The JSC Open House will be held from 9 a.m.—4 p.m. Aug. 24 and will feature more exhibits and activities that helped draw 70,000 people to the area last year. Once again, the Open House is held in conjunction with Ballunar Liffott, a hot air balloon event sponsored by Space Center Houston and the Clear Lake Area Chamber of Commerce.

For this year's event, 19 JSC buildings will be open for exhibits and presentations. Added this year are activities at Ellington Field and the Sonny Carter Training Facility where visitors will have an opportunity to see the world-class Neutral Buoyancy Lab that will be used to train astronauts for future space walks. At 201 by 102 feet in area and 40 feet deep, the 6.2 million gallon pool is the largest indoor pool in the world. At Ellington, four NASA planes will be on display—T-38, WB57F, the Shuttle Training Aircraft and the KC-135. The T-38 ground egress trainer also will be available.

Many of the activities that were favorites last year will be expanded, including tours of both the old and new Mission Control Centers and space shuttle simulators in Bldgs. 5 and 35. In the Teague Auditorium, the center will host a series of presentations focusing on accomplishments of the last year and plans for the future. Educational activities for children also are being planned, and astronauts will sign autographs in both cafeterias.

New exhibits and demonstrations will include an Apollo service module oxygen tank like the one which ruptured during Apollo 13, a "closed loop" life support test bed and hourly demonstrations of both U.S. and Russian space suits.

More hands-on activities also are planned. Visitors will have the opportunity to try to land the shuttle or dock it with the International Space Station in simulators in Bldg. 16. In Bldg. 9, in addition to seeing the shuttle and space station mockups, they will be able to try out the air-bearing floor.

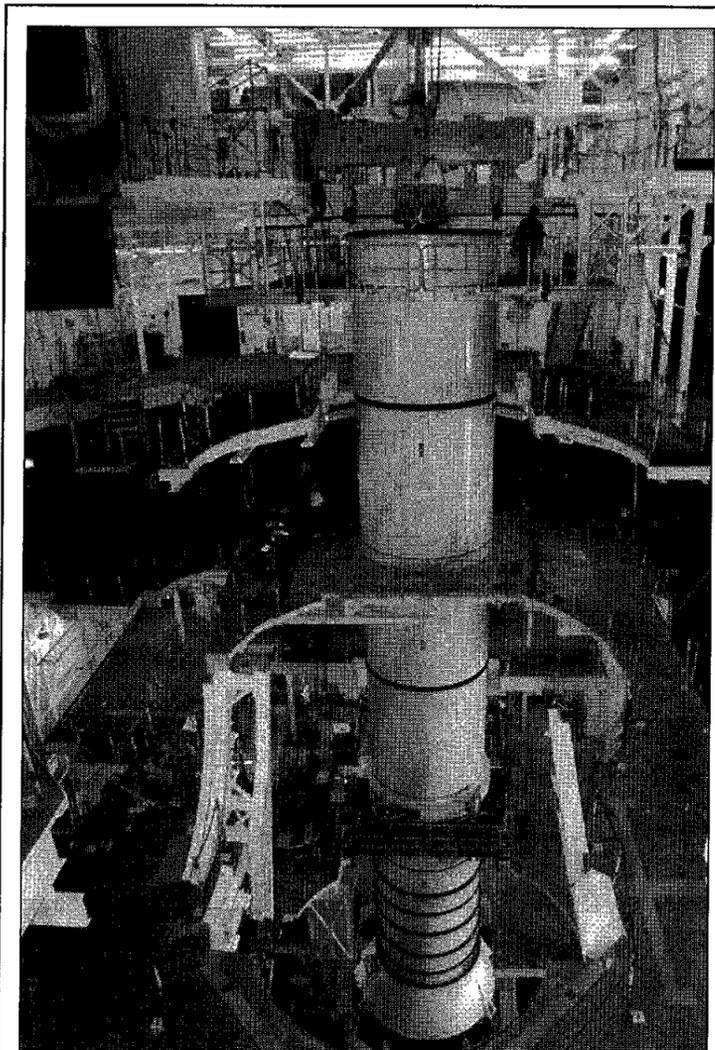
Volunteers from all organizations will be needed to work exhibits as well as assist and provide information. Those interested should contact Sandy Griffin at x31056.

## Blood drive set for August

JSC will host a blood drive from 7:30 a.m.—3:30 p.m. Aug. 15 in Teague Auditorium.

JSC employees face a substantial challenge if they are to surpass the level of generosity they exhibited at the May 23 drive. The center broke all previous records for blood donations, with 300 employees taking time out to give blood. Generally, donors can give blood every eight weeks. Employees are encouraged to "bring a buddy" if possible.

For more information, call Marty Demaret at x36007 or Dan Mangieri at x33003.



NASA Photo

In Bay 3 of the Vehicle Assembly Bldg. at Kennedy Space Center, work was completed this week to stack the solid rocket boosters for STS-79. Engineers demated *Atlantis* from its solid rocket boosters this week and moved the orbiter to the Orbiter Processing Facility. The shuttle will remain on the orbiter transporter in the OPF until it returns to the Vehicle Assembly Bldg. to be mated with its new boosters and external tank on approximately Aug. 13.

## Endeavour ferries to Palmdale

(Continued from Page 1)

launch in late 1997. A bad weather forecast forced the ferry flight to cancel a planned overnight stop at Ft. Campbell, Ky., and instead take a one-day trip along a southern route by way of Kelly Air Force Base in San Antonio. The flight stopped in San Antonio only to refuel and arrived at Palmdale before sunset.

In KSC's Bay 1 hangar,

*Columbia* is being readied for launch in early November. Preparations this week included installation of the mechanical arm, checks of the flash evaporator cooling system and test of the flight control computers.

In the Bay 2 hangar, *Discovery* is being readied for a February 1997 launch on STS-82. This week, the right orbital maneuvering system pod was installed.

## Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

The Roundup office is located in Bldg. 2, Rm. 181. The mail code is AP2. The main Roundup telephone number is x38648 and the fax number is x45165.

Electronic mail messages should be sent to the editor, khumphri@gp301.jsc.nasa.gov or the associate editor, kschmidt@gp301.jsc.nasa.gov.

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Associate Editor ..... Natasha Calder

## Blaha to return to Russia for Mir 22 launch

(Continued from Page 1)

been evident here on the ground for the past two weeks. The Mir 21 crew took a break from work over the weekend to watch some of the highlights of the Olympic games, which were uplinked to Mir on Saturday.

Lucid and her crewmates also downloaded radiation data from the Tissue Equivalent Proportional Counter. This experiment helps doctors monitor the crew's on-orbit exposure to radiation and may aid in crafting better shielding for the future crews on the space station.

The Mir 21 crew also conducted the seventh Anticipatory Postural Activity session successfully. The POSA experiment provides fundamental research in how the muscles operate and respond in microgravity. The results of this research will help scientists understand how the body

adapts to space flight.

The crew also continued its troubleshooting on the Biotechnology System to ensure its readiness for the next Mir mission. Mission managers are examining the possibility of manifesting a replacement computer for the system on STS-79.

The change in the planned launch of *Atlantis* back to the Russian station requires a change in planning and training for Astronaut John Blaha as well. And because astronauts know launch schedules can change, Blaha has been mentally preparing for the future.

"I talked to Russian cosmonauts," Blaha said, "and they told me that if you set your mind through out your training period that your flight is a certain length, and there is any delay, then it's a tremendous psychological let-down on orbit, one that

you never recover from. They have all told me to plan on staying longer in case something happens. So that's what I have done to prepare for that possibility."

Back here in Houston this week, Blaha has been conducting physical training with the STS-79 crew and undergoing exams to establish baseline data for comparison after his flight. Blaha will return to Russia this month to watch the launch of his Mir 22 colleagues—Commander Gennady Manakov, Flight Engineer Pavel Vinogradov and French Cosmonaut Researcher Claudie Andre-Deschays.

In the month of August, future Mir crews, both American and Russian, will be at JSC for a month of joint training on space shuttle systems and science training related to their upcoming missions.

## EAA sponsors Belize vacation

The Employee Activities Association is sponsoring a trip to Ambergris Caye, Belize.

Employees may travel from Sept. 1-Dec. 15 at cost of \$472, double occupancy. Cost includes round trip air fare, transfers from Belize City to San Pedro, four-night stay at Journey's End Caribbean Club Resort, continental breakfast, dinner and discounts for diving and tours of the jungle and Aztec ruins.

Journey's End features a large swimming pool with swim-up bar and grille, jacuzzi, lighted tennis courts and a full array of water

sports including canoes, windsurfers and sailboats. Beach activities include volleyball, basketball, horse-shoes and table games. The resort also features nightly entertainment and a piano bar.

A \$100 deposit is required with the remainder due 30 days prior to departure. Tickets may be purchased at the Bldg. 11 Exchange Store. To pay by credit card, employees must contact the USA Reservation and Information Center at 780-1566 and reference the JSC EAA trip. For more information, call Dick McMinimy at x34037.

## CTAP offers new classes in August

JSC's Career Transition Assistance Program is offering new and enhanced career seminars throughout the month of August, starting with an enhanced "Career Seminar" next Friday.

"Career Seminar" will highlight career assessment, how to prepare "situation specific" resumes, cover letters, networking and dealing with recruiters, ads and agencies. Newly added to this seminar is information on employment aspects of the Internet and preparing a "cyber-friendly" resume.

On Aug. 15, the new "Overcoming Communication Anxieties" seminar will be offered. Participants will learn how to identify and remedy old inhibitions that affect the quality of communication. The "Networking Revisited" seminar

also will be offered Aug. 15 and will help employees increase personal effectiveness by developing and maintaining sound business relationships through understanding and application of networking in the current business environment.

"Starting a Business" will be offered on Aug. 29, and will take participants through the details of beginning a business venture and "Becoming a Consultant" will discuss what it takes to become a successful consultant.

CTAP is a confidential, contractor-run service for civil servants interested in exploring a number of career-related topics. To register for any of the August seminars or for more information, contact CTAP at x34300 or stop by the center located in Bldg. 45, Rm. 308.

## SAREX sponsor wins award

Because of its role in the Space Shuttle Amateur Radio Experiment, the American Radio Relay League has been named an American Society of Association Executives "Award of Excellence" winner.

The society presents the awards to groups whose work best exemplifies the leadership role in creating a positive business and social climate. The ARRL, in cooperation with NASA Headquarters, creates and distributes SAREX lesson materials and resources for teachers.

"Thousands of ARRL members have done legwork to make hundreds of amateur radio contacts with the astronauts successful," said Rosalie White, ARRL's Educational Activities Manager.

SAREX just completed its 21st flight on STS-78 and is scheduled to fly again on STS-79. It is requested to fly on almost every flight.

"The educational objectives of the SAREX payload are to encourage students to pursue careers in science and mathematics, stress the importance of education and to show students that there is a connection between education and real life activities," said Matthew Bordelon, SAREX principal investigator. "Also, SAREX provides a meaningful recreational activity for shuttle crew members while accomplishing these goals and others: including conducting scientific experiments and promoting international goodwill and cooperation."